

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:) Confirmation No.: 2329
Shunpei YAMAZAKI)
Application No. 10/772,586) Examiner: Thanh T. Nguyen
Filed: February 6, 2004) Group Art Unit: 2893
For: METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE AND DISPLAY DEVICE UTILIZING SOLUTION EJECTOR)

AMENDMENT AFTER NOTICE OF ALLOWANCE UNDER 37 CFR 1.312

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Amendment is being filed in response to the Notice of Allowance mailed August 6, 2010. Applicant respectfully requests that the following claim amendments be entered.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 7 of this paper.

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A method for producing a semiconductor device comprising:

forming wiring by ejecting a first solution comprising a conductive material using a first solution ejector having solution ejection ports arranged in a cluster-pattern with moving the first solution ejector,

forming a resist mask by ejecting a second solution comprising a resist material on the wiring using a second solution ejector having solution ejection ports arranged in a cluster-pattern with moving the second solution ejector, and

etching the wiring using an atmospheric-pressure plasma device having a linear plasma generator using the resist mask as a mask by generating plasma between a first electrode of the linear plasma generator and a second electrode surrounding the first electrode of the linear plasma generator,

wherein at least the first electrode has a sheet-like shape.

2. (Canceled)

3. (Previously Presented) A method for producing a semiconductor device comprising:

forming wiring,

forming a resist mask at least on the wiring by ejecting a solution comprising a resist material using a solution ejector having solution ejection ports arranged in a cluster-pattern with moving the solution ejector, and

etching the wiring using an atmospheric-pressure plasma device having a linear plasma generator using the resist mask as a mask by generating plasma between a first electrode of the linear plasma generator and a second electrode surrounding the first electrode of the linear plasma generator,

wherein at least the first electrode has a sheet-like shape.

4. (Canceled)

5. (Previously Presented) The method for producing the semiconductor device in claim 1, wherein when the first solution is ejected using the first solution ejector, a substrate is heated.

6. (Previously Presented) The method for producing the semiconductor device in any one of claim 1 and claim 6, wherein the etching and/or ashing are/is processed at the atmospheric pressure or near-atmospheric pressure.

7-12. (Canceled)

13. (Previously Presented) A method for producing a semiconductor device comprising:

forming wiring by ejecting a first solution comprising a conductive material using a first solution ejector having solution ejection ports arranged in a cluster-pattern with moving the first solution ejector,

forming a resist mask by ejecting a second solution comprising a resist material on the wiring using a second solution ejector having solution ejection ports arranged in a cluster-pattern with moving the second solution ejector, and

etching the wiring using an atmospheric-pressure plasma device having a plurality of linearly-arranged plasma generators using the resist mask as a mask by generating plasma between a first electrode of the linear plasma generator and a second electrode surrounding the first electrode of each of the plurality of linearly-arranged plasma generators,

wherein each of the first solution ejector and the second solution ejector has three ejection ports forming a triangle.

14. (Previously Presented) A method for producing a semiconductor device comprising:

forming wiring by ejecting a solution comprising a conductive material using a solution ejector having solution ejection ports arranged in a cluster-pattern with moving the solution ejector,

forming a resist mask at least on the wiring, and

etching the wiring using an atmospheric-pressure plasma device having a plurality of linearly-arranged plasma generators using the resist mask as a mask by generating plasma

between a first electrode of the linear plasma generator and a second electrode surrounding the first electrode of each of the plurality of linearly-arranged plasma generators,
wherein the solution ejector has three ejection ports forming a triangle.

15. (Previously Presented) A method for producing a semiconductor device comprising:

forming wiring,

forming a resist mask at least on the wiring by ejecting a solution comprising a resist material using a solution ejector having solution ejection ports arranged in a cluster-pattern with moving the solution ejector, and

etching the wiring using an atmospheric-pressure plasma device having a plurality of linearly-arranged plasma generators using the resist mask as a mask by generating plasma between a first electrode of the linear plasma generator and a second electrode surrounding the first electrode of each of the plurality of linearly-arranged plasma generators,

wherein the solution ejector has three ejection ports forming a triangle.

16. (Canceled)

17. (Previously Presented) The method for producing the semiconductor device in claim 13, wherein when the first solution is ejected using the first solution ejector, a substrate is heated.

18. (Previously Presented) The method for producing the semiconductor device in any one of claim 9 to claim 15, wherein the etching is processed at the atmospheric pressure or near-atmospheric pressure.

19-26. (Canceled)

27. (Previously Presented) The method for producing the semiconductor device in claim 1, wherein when the second solution is ejected using the second solution ejector, a substrate is heated.

28. (Previously Presented) The method for producing the semiconductor device in claim 3, wherein when the solution is ejected using the solution ejector, a substrate is heated.

29-30. (Canceled)

31. (Previously Presented) The method for producing the semiconductor device in claim 13, wherein when the second solution is ejected using the second solution ejector, a substrate is heated.

32. (Previously Presented) The method for producing the semiconductor device in claim 13 or 15, wherein when the solution is ejected using the solution ejector, a substrate is heated.

33. (Previously Presented) The method for producing the semiconductor device in claim 1, wherein each of the first solution ejector and the second solution ejector has three ejection ports forming a triangle.

34. (Previously Presented) The method for producing the semiconductor device in claim 3, wherein the solution ejector has three ejection ports forming a triangle.

35-37. (Canceled)

38. (New) The method for manufacturing the semiconductor device according to claim 1, wherein the semiconductor device is a display device.

39. (New) The method for manufacturing the semiconductor device according to claim 3, wherein the semiconductor device is a display device.

40. (New) The method for manufacturing the semiconductor device according to claim 13, wherein the semiconductor device is a display device.

41. (New) The method for manufacturing the semiconductor device according to claim 14, wherein the semiconductor device is a display device.

42. (New) The method for manufacturing the semiconductor device according to claim 15, wherein the semiconductor device is a display device.

REMARKS

The Notice of Allowance dated August 6, 2010, has been received and is respectfully acknowledged by Applicant. In response to the Notice of Allowance, Applicant respectfully requests entry of the above amendments.

New claims 38-42 have been added dependent on allowed base claims 1, 3, 13, 14 and 15. The new claims are fully supported in the specification at least in the *Technical Field* of the originally filed specification. No new matter is introduced by these claims, and for the reasons advanced below, no new materials issues should be raised that would prevent entry of this amendment at this stage.

The new dependent claims 38-42 were originally presented as independent claims in the present application, and were withdrawn with traverse in response to the Election of Species requirement, dated August 23, 2005. Although they were previously withdrawn and unexamined, these claims are clearly patentable and do not require any additional search or examination, because they are all dependent on allowed independent claims. These claims were not previously presented because Applicant did not realize until a final review of the application following receipt of the Notice of Allowance that the withdrawn claims had not been rewritten into dependent form.

It is believed that no fees are presently due; however, should any additional fees be required (except for payment of the issue fee), the Commissioner is authorized to deduct the fees from Deposit Account No. 19-2380 for any fees inadvertently omitted which may be necessary now or during the pendency of this application.

In view of the foregoing, Applicants respectfully request reconsideration and allowance of the instant application including the entry of the above amendments. If a conference would be helpful in expediting prosecution of the instant application, the Examiner is invited to telephone the undersigned to arrange such a conference.

Respectfully submitted,

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